Electronic TUBES

6BY6—3BY6

HEPTODE

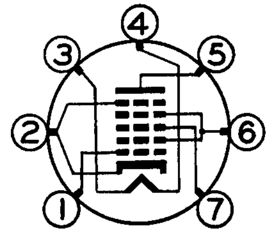
FOR GATED AMPLIFIER SERVICE

DESCRIPTION AND RATING

The 6BY6 is a miniature dual-control heptode designed primarily for use as a combined sync separator and sync clipper in television receivers. Each of the two independent control grids exhibits a sharp-cutoff characteristic.

Except for heater ratings, the 3BY6 is identical to the 6BY6. In addition as a result of its controlled heater warm-up characteristic, the 3BY6 is especially suited for use in television receivers which employ series-connected heaters. When the 3BY6 is used in conjunction with other 600-milliampere types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

BASING DIAGRAM

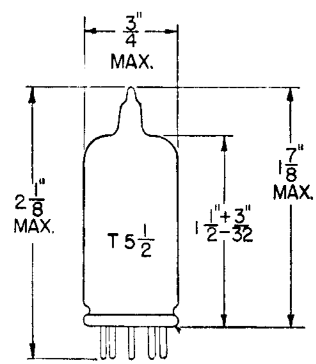


RETMA 7CH

TERMINAL CONNECTIONS

Pin 1—Grid Number 1
Pin 2—Cathode and Grid Number 5
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grids Number 2 and 4 (Screen)
Pin 7—Grid Number 3

PHYSICAL DIMENSIONS



RETMA 5-2

GENERAL

ELECTRICAL

	3BY6	6BY6	
Cathode—Coated Unipotential			
Heater Voltage, AC or DC	3.15	6.3	Volts
Heater Current	0.6	0.3	Amperes
Heater Warm-up Time*	11	....	Seconds

Direct Interelectrode Capacitances+		
Grid-Number 1 to Plate, maximum	0.08	μμf
Grid-Number 3 to Plate, maximum	0.35	μμf
Grid-Number 1 to All	5.4	μμf
Grid-Number 3 to All	6.9	μμf
Plate to All	7.6	μμf
Grid-Number 1 to Grid-Number 3, maximum	0.15	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	300	Volts
Screen-Supply Voltage	300	Volts
Screen Voltage—See Screen Rating Chart		
Positive DC Grid-Number 3 Voltage	0	Volts
Negative DC Grid-Number 3 Voltage	50	Volts
Peak Positive Grid-Number 3 Voltage	25	Volts
Negative DC Grid-Number 1 Voltage	100	Volts
Plate Dissipation	2.0	Watts
Screen Dissipation	1.0	Watts
Grid-Number 3 Input	0.1	Watts
Grid-Number 1 Input	0.1	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 3 Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.5	Megohms
With Cathode Bias	1.0	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

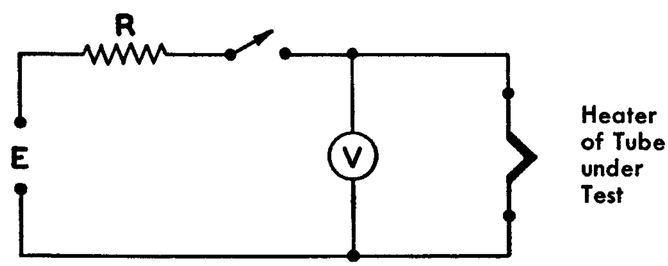
CLASS A_1 AMPLIFIER

Plate Voltage	250	250	250	Volts
Screen Voltage	100	100	100	Volts
Grid-Number 3 Voltage	0	—	−2.5	Volts
Grid-Number 1 Voltage	—	−4.0	−2.5	Volts
Grid-Number 3 Transconductance	—	—	500	Micromhos
Grid-Number 1 Transconductance	—	—	1900	Micromhos
Plate Current	—	—	6.5	Milliamperes
Screen Current	—	—	9.0	Milliamperes
Grid-Number 3 Voltage, approximate I_b=35 Microamperes	—	−15	—	Volts
Grid-Number 1 Voltage, approximate I_b=35 Microamperes	−12	—	—	Volts

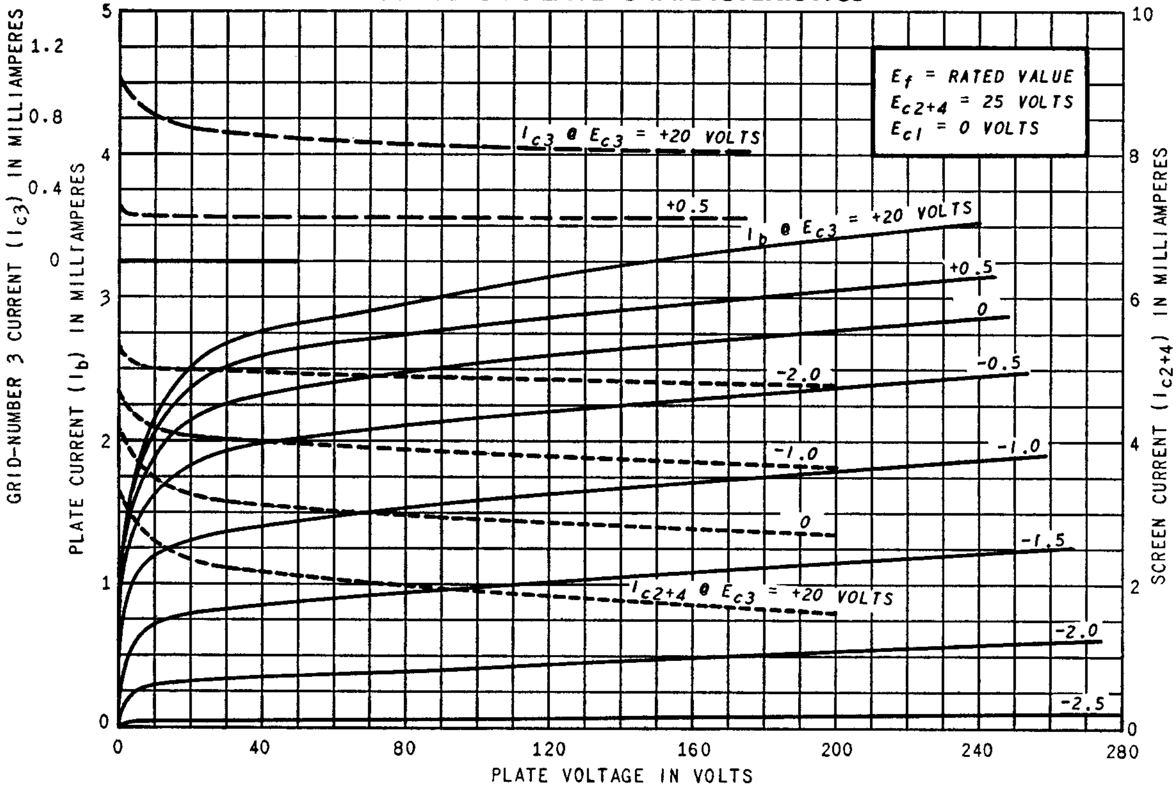
SYNC SEPARATOR AND SYNC CLIPPER SERVICE

Plate Voltage	25	25	10	Volts
Screen Voltage	25	25	25	Volts
Grid-Number 3 Voltage	0	—	0	Volts
Grid-Number 1 Voltage	—	0	0	Volts
Plate Current	—	—	1.4	Milliamperes
Screen Current	—	—	3.5	Milliamperes
Grid-Number 3 Voltage, approximate I_b=50 Microamperes	—	−2.5	—	Volts
Grid-Number 1 Voltage, approximate I_b=50 Microamperes	−2.3	—	—	Volts

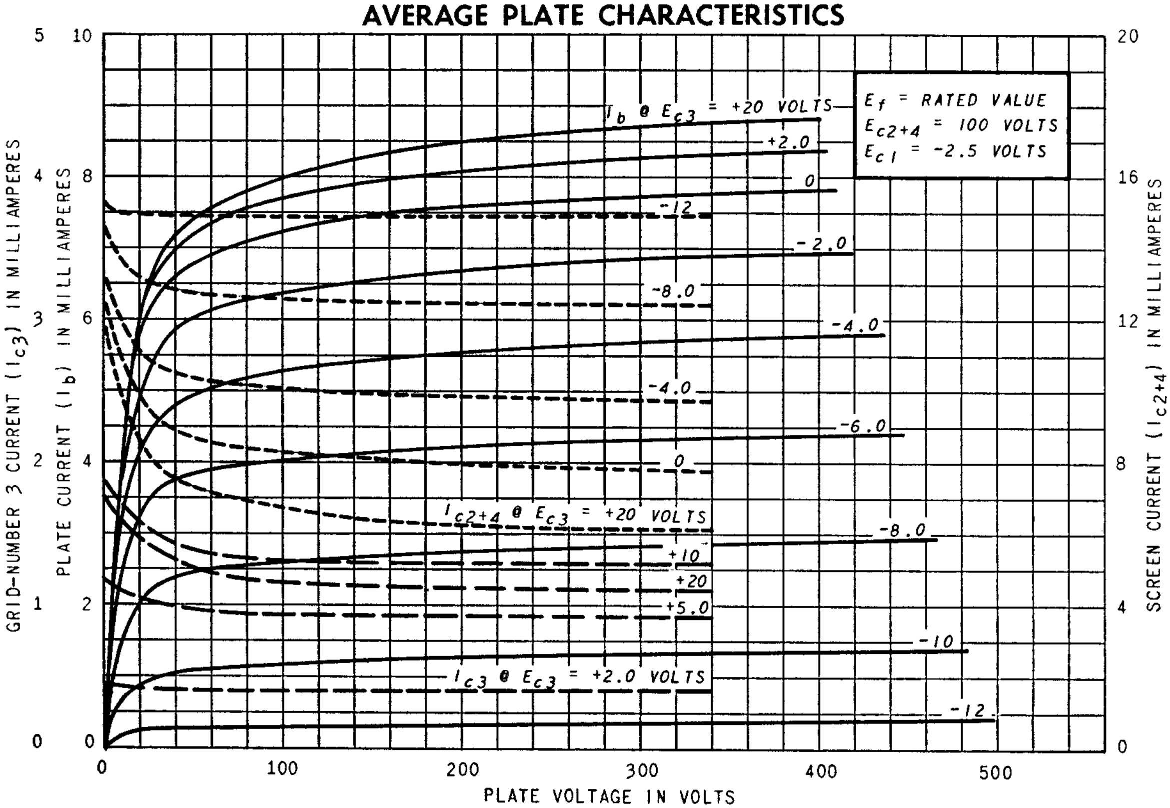
* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage (V_1). For this type, E=12.5 volts (RMS or DC), V_1=2.5 volts (RMS or DC), and R=15.8 ohms.
+ Without external shield.



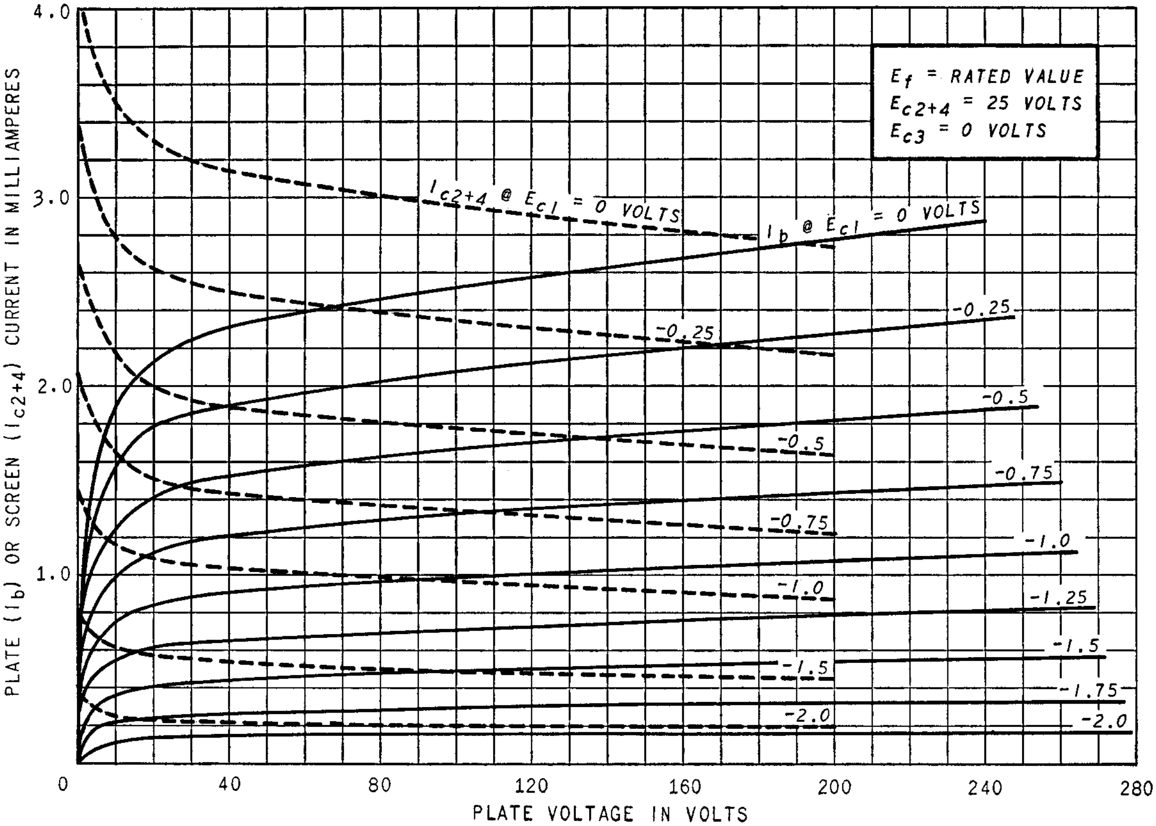
AVERAGE PLATE CHARACTERISTICS



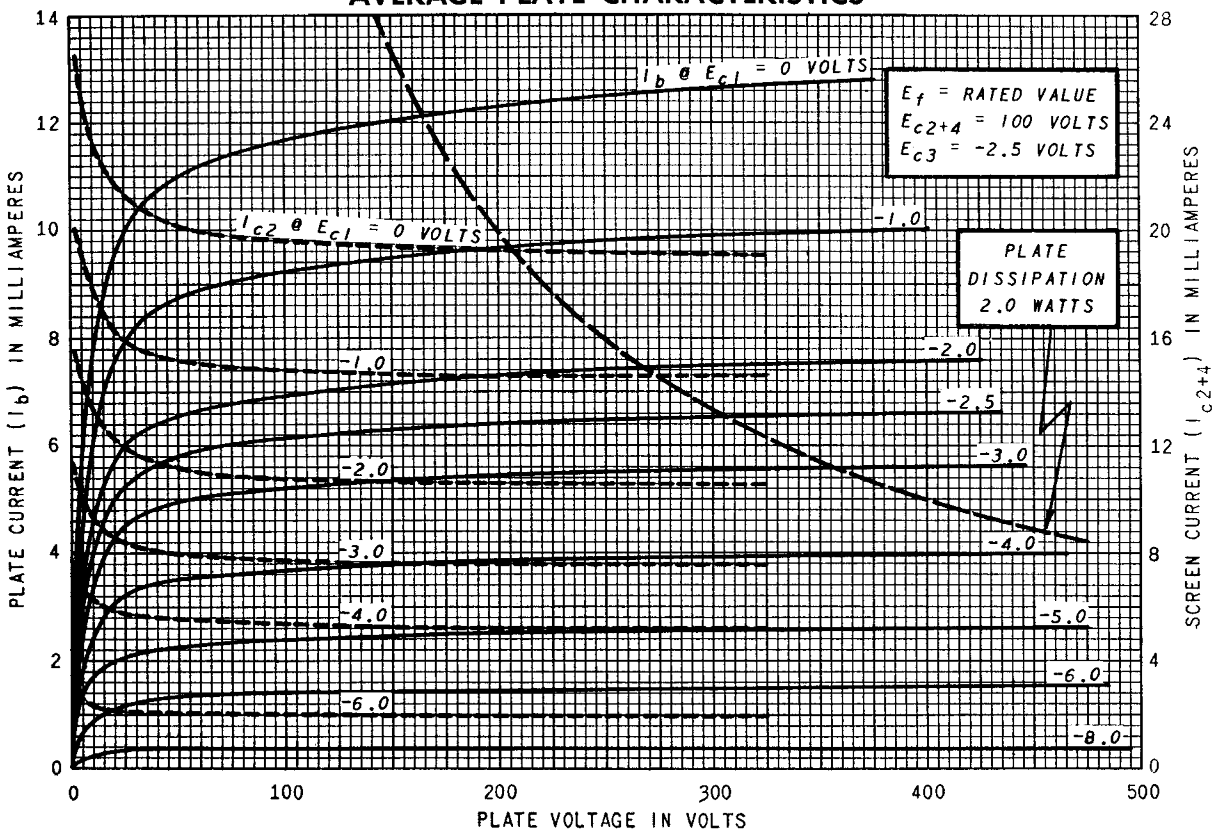
AVERAGE PLATE CHARACTERISTICS



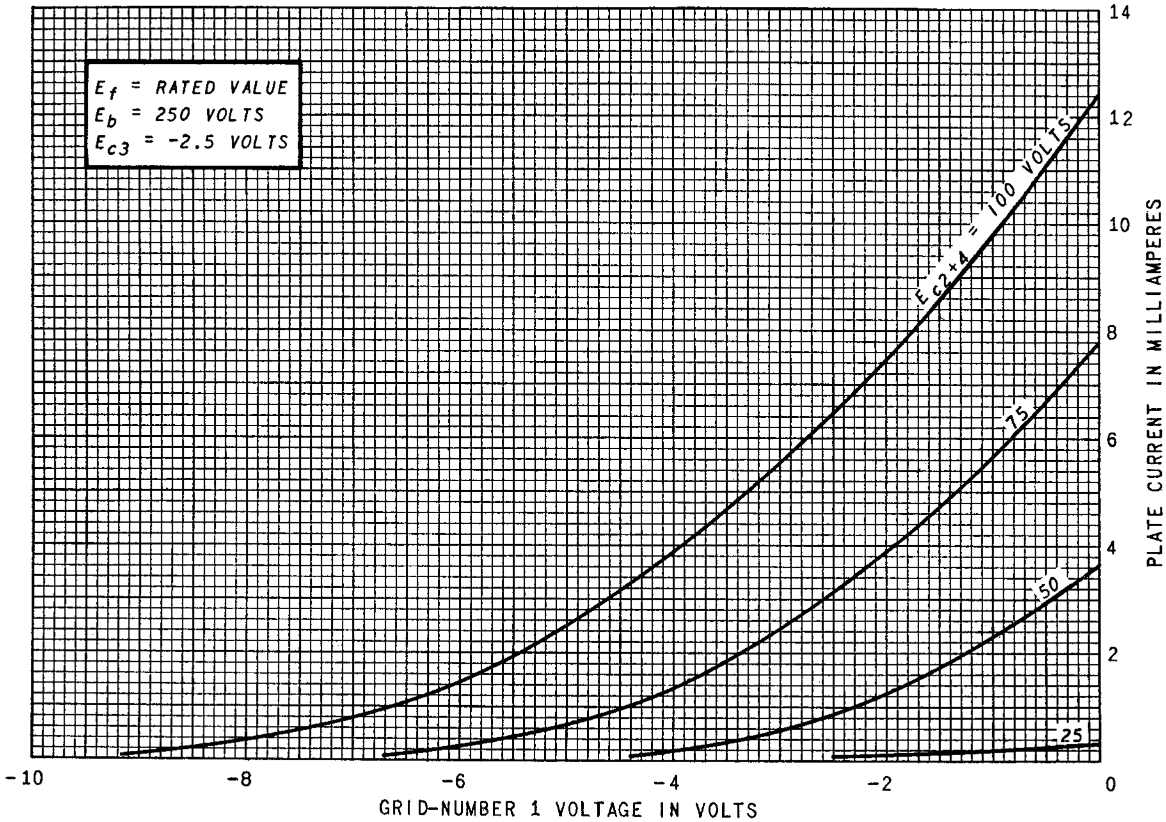
AVERAGE PLATE CHARACTERISTICS



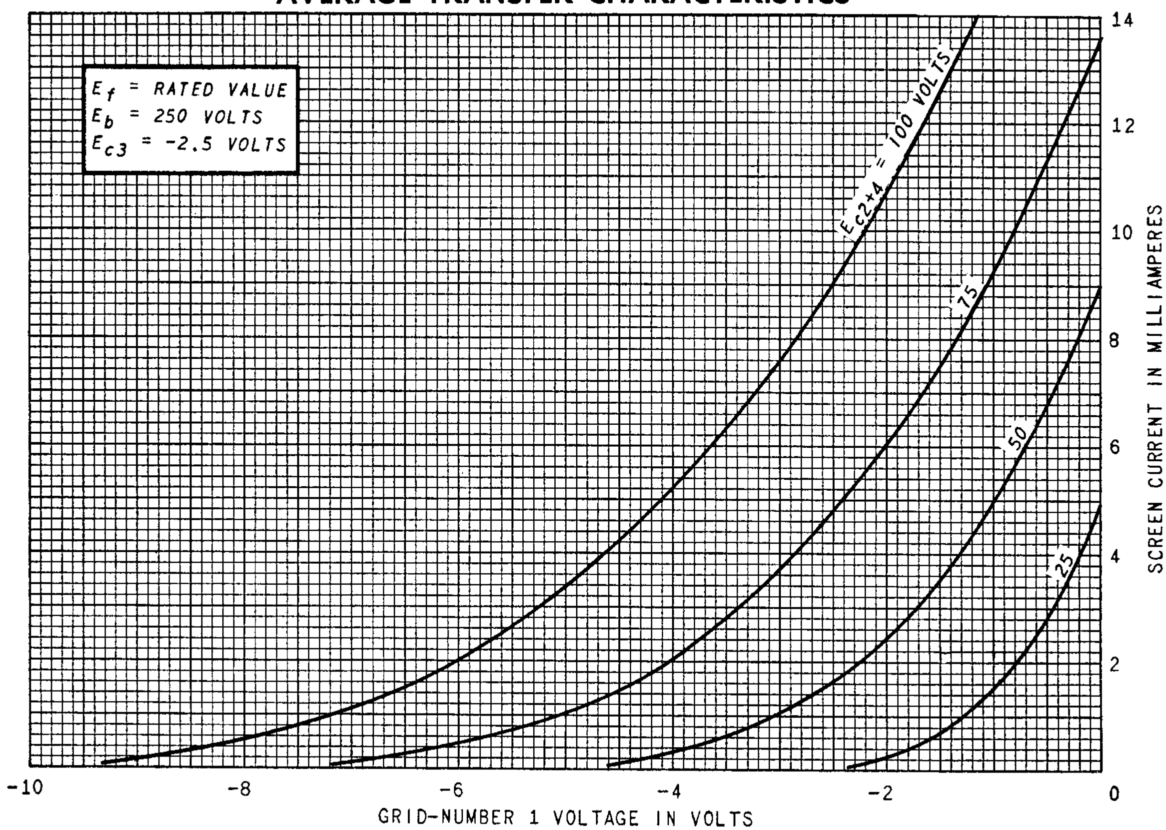
AVERAGE PLATE CHARACTERISTICS



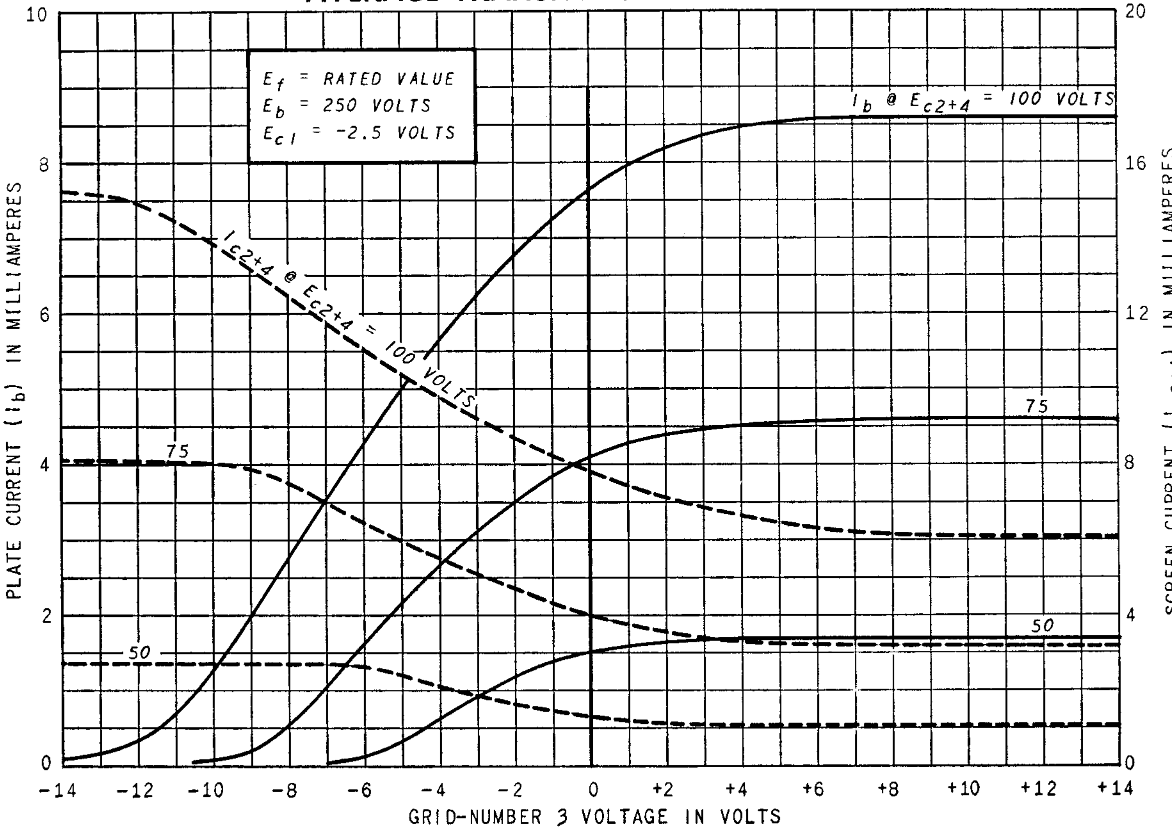
AVERAGE TRANSFER CHARACTERISTICS



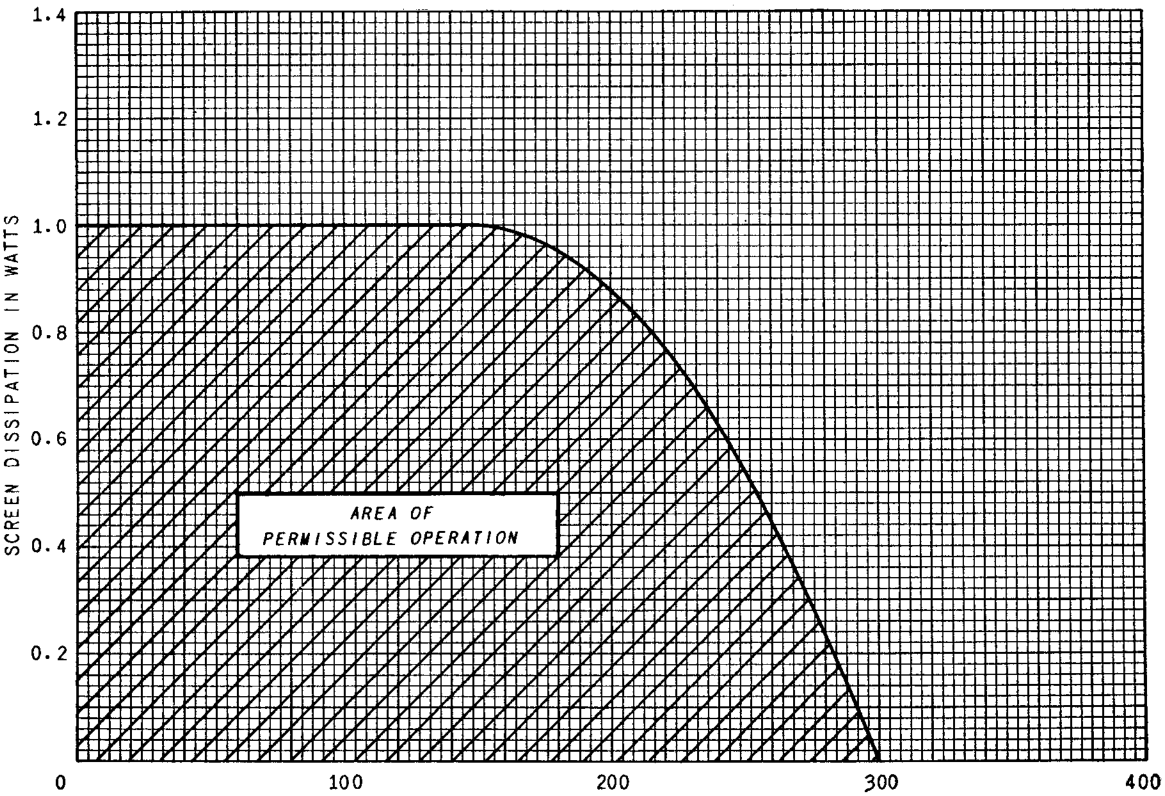
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



SCREEN RATING CHART



TUBE DEPARTMENT

GENERAL ELECTRIC

Schenectady 5, N. Y.

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